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DPD-3586-59

26 May 1959

MEMORANDUM FOR THE RECORD

SUBJECT: Field Trip Report - Sewart AFB, Tennessee and Lockheed Aircraft Corporation, Marietta, Georgia (19-22 April 1959)

1. The purpose of this trip was to obtain data on characteristics of operating and supporting the Lockheed C-130. AMS had been specifically requested to obtain information on C-130 range capability and the possibility of extending the range by augmenting the fuel system. Other members of the team were primarily interested in collecting data on high altitude parachute drops without visual reference to the ground and the navigational aids used to pin-point the drop zone.

2. At Sewart AFB, Tennessee the 314th Troop Carrier Wing played host to our team (representing Headquarters, USAF) consisting of:

25X1 [redacted] - DPD/AS
- DPD/AMS
- FE (Ops)
- COMMO
- COMMO
- COMMO

a. The 314th Troop Carrier Wing is equipped with C-130A's and has accumulated sufficient experience to offer representative data of considerable value. The 50th Troop Carrier Squadron of this wing was deployed to the Far East in the fall of 1958, during the Quemoy crisis, and other units of the 314th were deployed to the Middle East during the Lebanon crisis. Experience gained on these operations has been integrated in various planning documents, some which were obtained for our files (see list below). A particularly valuable report was compiled by the 50th Troop Carrier Squadron while deployed at Clark AFB, P.I. A copy is now on file in DPD/OPS/AS.

25 YEAR RE-REVIEW

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b. Prior to arrival at Sewart, the series of AFGC Reports on Evaluation and Suitability Tests on C-130A's had been reviewed and a list of deficiencies compiled. This list was used as an agenda for discussions with materiel personnel of the 314th. Because of the number and complexity of the deficiences reported during the many AFGC tests, no attempt will be made to describe them all. Suffice to say, most all have either been corrected or are being taken care of in the current modification program being accomplished by both Lockheed at Mariette, Georgia and by AMC at Warner-Robins AFB, Georgia. The major deficiencies which are not yet corrected which would have direct influence on Agency use of C-130A's are:

(1) Oxygen System - standard configuration (4D-2 cylinders-450 psi) provides one (1) hour supply for four (4) crew members. This supply is not adequate to carry out parachute drops from high altitude and there are no regulators in the cargo compartment for use by dropmasters. Consequently, personnel are handicapped by continually recharging walk-around bottles which only last from three to a maximum of 15 minutes. The local installation of a J-1 bottle has increased supply to a total capacity of 40 man hours.

(2) Vibration characteristics - despite reduction of noise and vibration by various modifications to structure and new gear reduction ratio (prop to engine), crew fatigue will probably preclude missions of any greater duration than present range capability permits. From the standpoint of maintenance, vibration produces high attrition of cockpit lights and fuses, skin cracks, and failure of hydraulic lines and fittings.

(3) Engine oil consumption - despite improvements in engine lubrication system which have reduced oil consumption, it is likely that oil capacity would limit the range if fuel was added without replenishing the oil supply.

c. In general, Air Force personnel at Sewart seem to favor the C-130A because of its handling characteristics and abundance of power. They do not have a great amount of confidence in its potential for remaining in commission between flights. It should be remembered that many features, such as air cooling turbine motors, gas turbine compressor, and turbo-prop engines are relatively new to the Air Force and maintenance experience is limited accordingly. The latter point is made in consideration of potential Agency requirements for C-130's.

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d. The following material was obtained from Sewart:

(1) Pilot's and Flight Mechanic Technicians Questionnaire.
(2) C-130 Flyaway Kit Listing for Troop Carrier Squadron.
(3) Mobility Plan. (Typical load plans).
(4) Unit Emergency Supply Kit List.
(5) Applicable Technical Order and ECP Listing.
(6) LAC Cruise Control Manual.

3. During the visit to Georgia Division of Lockheed Aircraft Corporation at Marietta, Georgia (Dobbins AFB), the following personnel contributed to discussions on the C-130A:

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, Vice President and General Manager.
Assistant General Manager.
sistant General Manager.
ipping and Provisioning.
Modification Sales.
130 Project Engineer.
ef Engineer.
Sales Manager.
Assistant Sales Manager (Military Sales).

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a. Messrs. (former Chief Engineer), and were the primary contributors to the discussions on in-flight refueling. The same items referred to in paragraph 2.b. above were reviewed with who provided considerable amplification on corrective measures incorporated in current modification program, late model C-130A's and the C-130B.

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b. presented an informal study on fuel system augmentation. This study will be appended to a separate report on the relative range characteristics of the C-130A and the C-133B.

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c. provided the following listings now on file in AMS:

(1) Recommended Spare Parts/Equipment List -RC-130A.
(2) Test Support Table - RC-130A.
(3) APCS Conference Condition (Provisioning) Document for RC-130A

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d. Mr. provided several brochures on the C-130A and C-130B in addition to the following:

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(1) Schedule of C-130A Modification Program.
(2) Brochure of Modifications to be Accomplished.
(3) Minutes of Recent C-130A and C-130B Weapon System Phasing Group Meetings.
(4) Complete series Lockheed Service News (Georgia Division).
(5) Drawings of C-130A oxygen system with provision for augmentation.

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e. [redacted] has furnished a rough estimate on the cost of engineering, installing and testing on in-flight refueling system adapted to the C-130A. This estimate is incorporated in a separate AMS-OPS/AS study on C-130/C-133 suitability.

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f. [redacted] pointed out that any desired combination of range and payload figures could be used to determine degree of fuel augmentation necessary. The study mentioned in 3.b. above illustrates several methods of augmentation which increase the range without compromise to cube, however, gross weight limitations are naturally imposed.

g. Attached is a list of those key individuals, and pertinent data for clearance purposes, who could be most helpful should the Agency undertake further C-130A activities.

4. To summarize, it appears that the improved version of the C-130A could be effectively used to perform a variety of Agency missions. It must be accepted that the aircraft is relatively new and somewhat of an innovation to the Air Force. It is, therefore, still suffering from a number of "growing pains" or "bugs" which every new equipment undergoes. These difficulties are rapidly being overcome and increasing appreciation for this vehicle is commensurate. One of the developments most worthy of further examination is the RC-130A which has been produced for the Air Photographic and Chart Service (APCS). This model has improved navigational aids and better crew facilities in addition to the special mission equipment. Of particular interest is the "package" concept wherein special electronic equipment, consisting of black boxes, control panels and operators chairs, is mounted on castered platforms (approximately 5' square). These platforms can be quickly rolled into place in the main cargo compartment, connected, calibrated and placed in operation in minimum time. In even less time, these packages

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can be removed to ready the aircraft for parachute drop, cargo or personnel carrier missions. It is certainly conceivable that this concept could be employed to develop a true multi-purpose mission aircraft. In any case, further study is suggested.

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Attachment: (1)

Distribution:

25X1 Orig - AMS
1 - DPD/AS [redacted]
1 - Chrono
1 - RI

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DPD/MR/AMS [redacted] ngw/4666 (26 May 1959)